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NEWSPAPER CONSUMPTION IN THE DIGITAL AGE

Measuring multi-channel audience attention and brand popularity

Neil Thurman

This study performs comparative and longitudinal analyses of the domestic and overseas consumption (measured by time-spent-reading and popularity) of UK national newspaper brands across their print editions and online channels (excluding mobile 'apps'). The study estimates that, in 2011, a minimum of 96.7% of the time spent with newspapers by their domestic audience was in print, with 'popular/tabloid' titles least successful in capturing audience attention online. In terms of popularity, the print channel accounted for a majority of domestic daily readers: in 2011 the newspapers studied had an estimated average daily readership per print copy of 2,110,633. By contrast, the average number of online sessions per day was estimated to be between 385,156 and 709,559. Nearly half the newspapers may have increased their aggregated domestic print and online popularity between 2007–11, although those increases have not translated—with one exception—into increases in time spent with those brands. The online channel has increased newspapers' daily overseas audience by between 7–16 times. However, because those online readers' visits are relatively brief, the effect on the attention newspapers receive (measured in time) from overseas has been minimal. In fact, two-thirds of the newspapers for which the most recent data was available suffered decreases in the time their overseas readers spent with their print and online channels between 2008/9 and 2011.

KEYWORDS Audience measurement; Audit Bureau of Circulations; National Readership Survey; newspaper circulation; newspaper popularity; newspaper websites; Nielsen; online journalism

Introduction

On 18 October 2012 Newsweek announced it would be ending its 80-year history as a print publication. The magazine's editor and CEO said they had come to "a tipping point" at which they could "most efficiently and effectively reach our readers in all-digital format" (Brown and Shetty 2012). Such a statement prompts questions about:

- The effectiveness of such all-digital reach.
- How publications' reach across their print and online channels can be compared, and with what results.
- What looking beyond reach—traditionally defined as the number of readers exposed to a publication over a given time period—to other measures of media consumption can tell us about the position of legacy print media in the digital age.

These questions are relevant not just to publishers themselves, but also to advertisers who have an increasing variety of ways to communicate with their customers; to academics studying media effects; and to legislators and regulators making decisions based on measures of market share.

Although important, the answers to these questions are difficult to find—if they are available at all—because:

- Much of the data produced in attempts to measure media audiences is not in the public domain.
- The audience measurement standards for newspapers' and magazines' print and online channels are different and do not allow for straightforward comparisons.
- Measurement standards have privileged exposure-based metrics such as print circulations and website page views over alternative measures of audience behaviour—such as attentiveness—that come under the broad notion of engagement.

This article attempts to answer these questions for twelve UK national newspapers. In doing so a range of data (both freely available and paid-for) was used, and combined in innovative ways. For example, the standard audience measures for newspapers' online channels, as published by the Audit Bureau of Circulations (ABC), are: the number of pages viewed per month, and the number of unique devices (personal computers, smartphones, tablets etc.) that access sites, again over a monthly period. There is no equivalent of these page view counts for printed newspapers, and printed newspapers' circulation figures (reported as a daily average of physical copies distributed) are different from the monthly counts of unique devices (known as 'unique users / browsers' in the industry). For these reasons this study used panel-based electronic survey data from The Nielsen Company as an additional source of online audience data. It provided information on time-spent-reading, which could be directly compared against an equivalent figure for print calculated from the ABC's circulation data and the UK's National Readership Survey's time-spent-reading and readers-per-copy data. Nielsen also supplied data—on the number of 'sessions' users spend with newspapers' online channels—which was compared against print popularity. Although other research suggests a wide variety of possible measures of web attention, such as visibility, stickiness, depth, and loyalty (Zheng, Chyi, and Kaufhold 2012), this study's ambition to compare consumption across newspapers' print and online channels limited the metrics it was possible to use.

Newspapers' print circulation figures and readerships, and their online stickiness and reach, are constructed by myriad decisions about what to measure, and how. It is not surprising, then, that media audiences have been described as "institutionalized", defined in particular ways, "using analytics tools and perspectives that reflect [media organizations'] needs and interests" (Napoli 2011, 3). Such vested interests can result in institutional resistance to new measurement systems if stakeholders are reasonably satisfied with the way the audience marketplace is operating, or fearful of the effects of change. Investigations into the "audience marketplace have been relatively infrequent" (Napoli 2003, 4). Indeed, audience research lags behind research on media content in scale, and tends to concentrate on "audiences as individual or aggregate consumers and interpreters of media products" (6). The relative absence of studies into the audience as a product market means we have relatively little evidence of how audience measurement affects the content and structure of media institutions. We do know, however, that "the audience measurement process can systematically favour some categories of media organizations or the production of some forms of content over others" (89). For example, in the US, one study estimated that the prevailing measure of television consumption underestimated audiences for cable TV by 37 per cent (89). Although newspapers have been losing out to online-only media if traditional exposure-based performance metrics are used (see, for example, Kantar Media [2012]), it may be that their performance stands up better if alternative metrics such as engagement are used (see, for example, PR Newswire [2008]). Furthermore, a reconceptualisation of newspapers' audience metrics in the multi-platform era may reveal a shifting of historical

definitions of what the 'popular' press is. The perilous financial position newspapers find themselves in is, some have argued, partly a result of that fact that "audience exposure remains the fundamental criterion for audience exchange" (Napoli 2011, 67). Showing that they score better than their pure-play competitors on alternative measures, such as engagement, may even help newspapers slow their decline.

Research Questions

The overarching aims of this study were: 1) to determine the extent to which it was possible to perform comparative and longitudinal analyses of the consumption of newspaper brands across their print and online channels; and 2) where such analyses were possible perform them on up to twelve UK national newspaper brands for the years 2007–11. In pursuit of these aims a number of specific research questions were formulated to determine:

- RQ 1: The time the *domestic* readerships of UK national newspapers spend reading their *print* editions.
- RQ 2: The time the *domestic* readerships of UK national newspapers spend reading their *online* editions.
- RQ 3: The time the *overseas* readerships of UK national newspapers spend reading their *print* editions.
- RQ 4: The time the *overseas* readerships of UK national newspapers spend reading their *online* editions.
- RQ 5: The *domestic* popularity of UK national newspapers' *print* editions.
- RQ 6: The *domestic* popularity of UK national newspapers' *online* editions.
- RQ 7: The *overseas* popularity of UK national newspapers' *print* editions.
- RQ 8: The *overseas* popularity of UK national newspapers' *online* editions.

The last four research questions concern the popularity of newspaper brands' print and online channels. It was determined early on that no single common measure of popularity existed. The closest comparable metrics the data provided for were, for print, the average daily readership per copy; and for online either the average number of online sessions per day, or the average daily number of unique users/browsers.

As the methodology section will explain, data limitations meant that the answers to RQs 3, 4, 7, and 8 are approximate and incomplete.

Methodology

A sample of 12 UK national newspapers was selected for analysis. The sample included two 'middle-market' titles (the *Daily Mail* and the *Daily Express*), five 'popular/tabloid' titles (*The Sun*, *The People*, the *Daily Mirror*, the *Daily Star*, and the *Daily Record*), and five 'quality/broadsheet' titles, three of whose websites were free to access (*The Independent*, *The Guardian*, and *The Daily Telegraph*) and two of whose (the *Financial Times* and *The Times*) had erected a paywall. The titles' Monday–Friday, Saturday, and Sunday¹ print editions and their online channels (excluding mobile 'apps')² were included in the analysis. For reasons of brevity, at various places in this article the newspaper brands are referred to by the name of their Monday–Saturday print edition rather than listing their full range of print and online editions: for example '*The Daily Telegraph*' rather than '*The Daily Telegraph* / *The Sunday Telegraph* / *Telegraph.co.uk*'. Although this study is of newspapers in the UK, it is likely—due to similarities in market and audience dynamics—that comparable results would be found for titles in developed media markets outside the UK.

This study used time-spent-reading and readers-per-copy data from the UK's National Readership Survey; print circulation data from the UK Audit Bureau of Circulations

(ABC); time-per-person, total sessions, unique audience, and page view data from Nielsen's UK panel; and page impression and unique user/browser data from ABC. This section describes and appraises each data source in turn. A full explanation of how the data sources were combined to answer the research questions is provided in the methodological appendix.

Data Sources

NRS time-spent-reading. Since 2007 the NRS have collected time-spent-reading data: the average number of minutes readers spend with a range of newspapers and magazines including the UK's national daily print newspapers and their Sunday editions. The NRS uses a large—36,000—and randomly selected sample of UK adults over the age of 15. Procedures are used to ensure the sample is weighted based on sex, age, region, social grade, and household size. Data comes from a questionnaire conducted in participants' homes. The question on time-spent-reading asks "how long you usually spend reading or looking at [the publication]". Respondents select one answer from ten possibilities that include: "never read" to "about 3 hours or more" (NRS 2012a). The question is asked separately for newspapers' Monday–Friday, Saturday, and Sunday editions. A weakness of the NRS's methodology is its reliance on reader recall; however, the data show little variation year-on-year. For example, for the years 2007–2011 inclusive the NRS's time-spent-reading data for 31 separate national newspapers' Monday–Friday, Saturday, and Sunday editions has a standard deviation of just two from an average reading time of 54 minutes. The data is also broadly in line with other international surveys (see, for example, data from Finland reported in Thurman and Myllylahti [2009, 706]).

NRS readers-per-copy. The NRS also supplied data estimating how many readers look at each print copy. The NRS estimates that some newspaper editions have up to five readers-per-copy, although the typical range is 2–3. This is because each print copy may be passed between members of a household or colleagues at work. The number of readers-per-copy is an important variable and, as with time-spent-reading, the NRS's reliance on consumer recall is a methodological weakness. Their results are, however, broadly in line with other international surveys (see, for example, NNN [2010]).

ABC print circulation. The print newspaper circulation data this study uses comes from newspaper publishers themselves, reported in accordance with audited standards laid out by the ABC. The data includes so-called bulk or multiple sales (see methodological appendix for more information).

ABC unique user/browser and page impression data. The Internet usage data provided by ABC comes from newspapers' own web server logs. It is certified by ABC as conforming to standards set down by The Joint Industry Committee for Web Standards in the UK and Ireland. Unlike Nielsen's unique audience estimates, the unique user/browser data reported by ABC is a measure of the devices through which people interact with websites rather than a direct measure of individual users themselves. As a result, ABC warns that the "real number of individual users (people)" (ABC 2011) may be overstated. For example, a single individual could be counted as a unique user three times if he or she accesses the same website from a home and work computer and a mobile device during the census period.

ABC defines a page impression as "a file, or combination of files, sent to a valid user as a result of that user's request being received by the server". The standards that ABC certify have evolved to allow "mouse clicks" (ABC 2011) to be used to count page impressions, thus providing a means to approximate usage of interactive graphics, Flash movies, and—recently—mobile 'apps' that are not page-based and/or bypass the world-wide-web altogether. This study uses ABC's breakdowns of 'unique user/browsers' and 'page impressions' by country. This data is generated from analyses of IP addresses. As will

be discussed, it is important to note that the ABC online data used in the main part of this study excludes use made of newspapers' mobile 'apps'.

The Nielsen data. Nielsen provided data on unique audience, total sessions, time-per-person, and page views for each newspaper website. Unique audience represents the number of unduplicated individuals accessing a website over the census period. A session is a "single continuous set of activity attributable to a user ... resulting in one or more pulled text and/or graphics downloads from a site" (IAB 2009). Nielsen terminates a session after 30 minutes of browser inactivity. Time-per-person is total duration of all sessions recorded during the census period divided by the unique audience figure for that same period. Page views are the number of pages pulled from a website over the census period. The time-per-person data may overestimate the actual time users spend interacting with a website because of the way a session is calculated. So, for example, if a user opens a browser window, downloads a single web page, scans it briefly but then leaves the browser open while, for example, away from his or her desk or working in another application, that session of 'activity' would be recorded as having lasted the full 30 minutes, rather than the few seconds or minutes it actually took.

The Nielsen data this study uses comes from their UK panel of respondents who have their Internet activity recorded via tracking software. Nielsen records both at 'home' and at 'work' use and, as of October 2012, their panel consisted of about 40,000 individuals (aged 2+). Although Nielsen do not publish a breakdown of how much of their UK panel is based at home and how much at work they say that the work sample is "quite a lot smaller ... at around 10% of the total sample" (Barney Farmer, personal communication, October 23, 2012). Nielsen use weightings in an attempt to make the panel representative of the UK's Internet population. As well as Internet use via web browsers, Nielsen's tracking software records Internet use via 'applications'—installed software that is used in conjunction with the Internet. Such applications include media players and news & information toolbars but not, as will be explained, 'apps' on smartphones and tablets. Nielsen's data was selected for a number of reasons:

- It provided coverage of all UK national newspapers' websites using a single methodology.
- The tracking software is not reliant on cookies—the small data files websites place on users' machines that can be retrieved to track activity—which users can and do block or delete.
- The tracking software measures known individuals' Internet use and, therefore, avoids the problem—common to so-called 'site-centric' measures that rely on IP addresses and / or cookies—of the same individual being counted as a unique user multiple times if they access a website from computers at home, at work, and via a mobile device.

The Nielsen data does, however, have some limitations. Firstly, the data may understate the level of use from work locations because of the small size of the work panel and its composition, a result, some have argued, of corporate IT managers' reluctance to allow the tracking software to be installed (Cable and Douglas 2009). Secondly, use outside home and work may be under-recorded. Such use comes, for example, via: computers shared by multiple users—such as in airports, educational establishments, and Internet cafes; and mobile phones and tablets. In recognition of these limitations, from April 2012, Nielsen, in partnership with the UK Online Measurement Company, introduced a new 'hybrid' data methodology that supplements its panel-based data with server data from a sample of selected publishers. As table 1 shows, Nielsen's trials indicate that their traditional exclusively panel-based methodology (which produced the data this study uses) may have been underestimating online newspapers' monthly unique audiences by around 30%; and total monthly page views and the number of minutes spent reading by about 100%.

Table 1: Percentage increases in 'unique audience', 'total minutes', and 'total page view' values for three UK newspapers' online channels as a result of Nielsen's change to 'Hybrid' methodology, February 2012

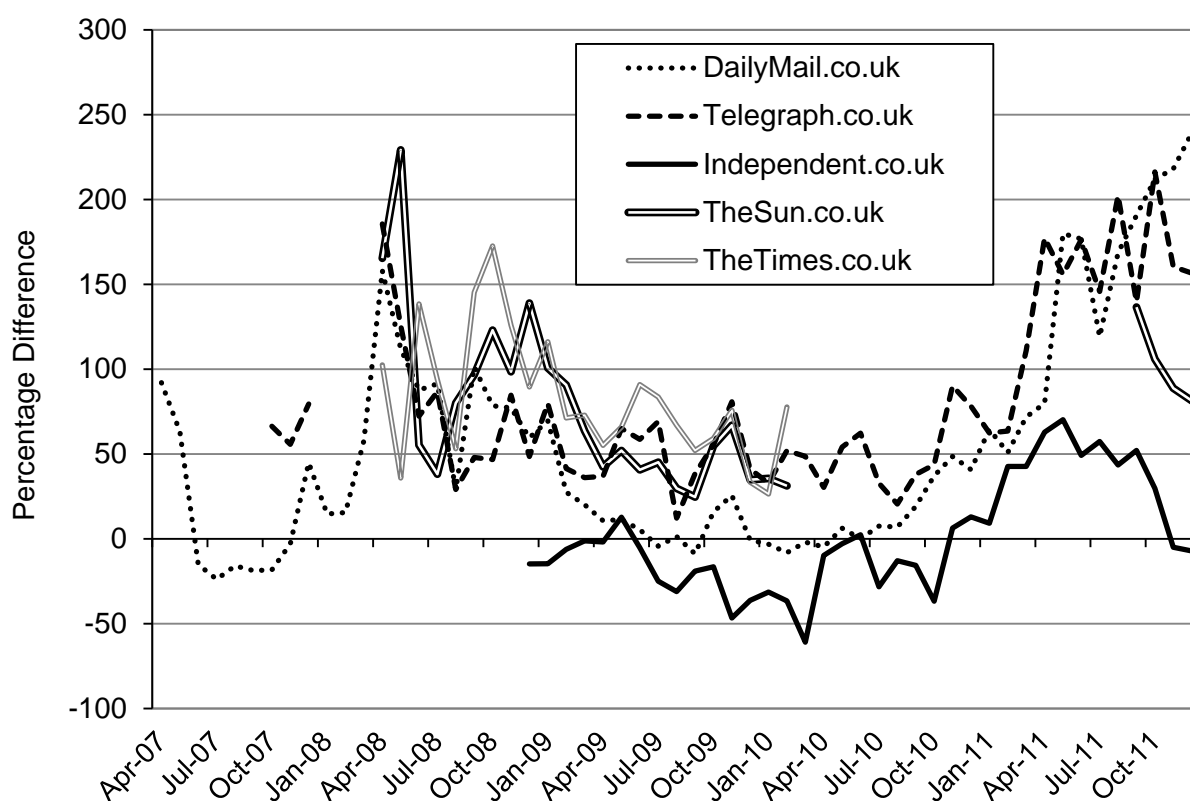
	Unique Audience	Total Minutes	Total Page Views
Associated Newspapers	13.8	62.0	49.4
The Guardian	20.4	37.5	34.4
Telegraph	31.4	104.0	101.8

Source: UKOM (2012)

This 'hybrid' data was not available in time for this study, and does not go back far enough to accommodate this study's longitudinal approach. However, it, and this study's own analysis, has been used to adjust the Nielsen data. Although this adjustment attempts to correct for the under-reporting of use outside home and work, it does not—and cannot—correct for Nielsen's inability to record the usage made of newspapers' mobile 'apps'.

This study's analysis of the extent to which Nielsen data underestimates online news consumption was based on a comparison of the number of page impressions originating from the UK recorded by 1) Nielsen and 2) by online newspapers' web servers. This study makes the assumption that online newspapers' own 'server-centric' methodology is the more accurate of the two, recording, as it does, every request for a web 'page'. Data on page requests originating from the UK are not universally or consistently released by newspaper websites via ABC. This study used all the available ABC data, which covered five national newspaper websites from April 2007–December 2011, with gaps in some months. The data, which is presented in figure 1, shows a substantial difference in the traffic reported, with, in 2011, newspapers' web servers recording an average of 108% more page impressions than Nielsen's panel-based estimates. This level of difference is anticipated by Nielsen's own trial data (shown in table 1), which shows a variation of up to 102%. Page impressions and time-spent-reading are closely linked, as table 1 shows. This study's own analysis and Nielsen's trial data confirm that the Nielsen data this study uses underestimates the time-spent-reading by the UK online audience. This study estimates the extent of that underestimation to be between 37.5% and 165.3%. In order to calculate this range it was first necessary to work out that, according to Nielsen's trial data, the average uplift in time-spent-reading that resulted from Nielsen's change to 'hybrid' methodology was 1.12 times greater than the corresponding uplift in page views. This study showed (see figure 1) that across the whole of 2011 Nielsen underestimated page view counts for the *Daily Mail* website by an average of 147.6%. When multiplied by 1.12 this gave the upper extent of the correction scale: 165.3%. The lower value of the correction scale—37.5%—was the smallest recorded uplift in time-spent-reading, recorded for *The Guardian* website in Nielsen's February 2012 trial. In calculating the answers to RQ 2 and RQ 6, the Nielsen data used was adjusted using this correction range.

Figure 1: Variations between Nielsen and ABC's UK page view counts for five UK national newspaper websites, April 2007–December 2011 (sources: ABC and Nielsen Online. Copyrighted. All rights reserved)



Note: Nielsen page views give the zero per cent baseline. The data series represent the percentage difference between that baseline and the number of page impressions registered by ABC.

This concludes the description and appraisal of the data sources used. A full explanation of how they were combined to answer the research questions is provided in the methodological appendix.

NRS Print And Digital Data Initiative

It is important to note that towards the end of this study, in September 2012, the National Readership Survey launched PADD (Print and Digital Data), their own attempt to fuse print and digital audience data (NRS 2012b). The approaches taken by PADD and this study have some common features, but also some important differences. Unlike this study, the NRS's PADD approach attempts to estimate the duplication between newspapers' print and online audiences and also provides data on newspapers' monthly and weekly 'reach' / popularity (this study reports 'reach' / popularity on a yearly basis). Unlike the NRS's PADD approach, this study provides a longitudinal perspective on trends, dating back to 2007; it analyses data on audiences outside the UK; and it fuses online 'dwell time' and print time-spent-reading data to reveal multi-channel audience attention

Figure 2: Estimated total annual minutes spent reading by the aggregated UK print and online readerships of each of 12 UK national newspapers, 2011

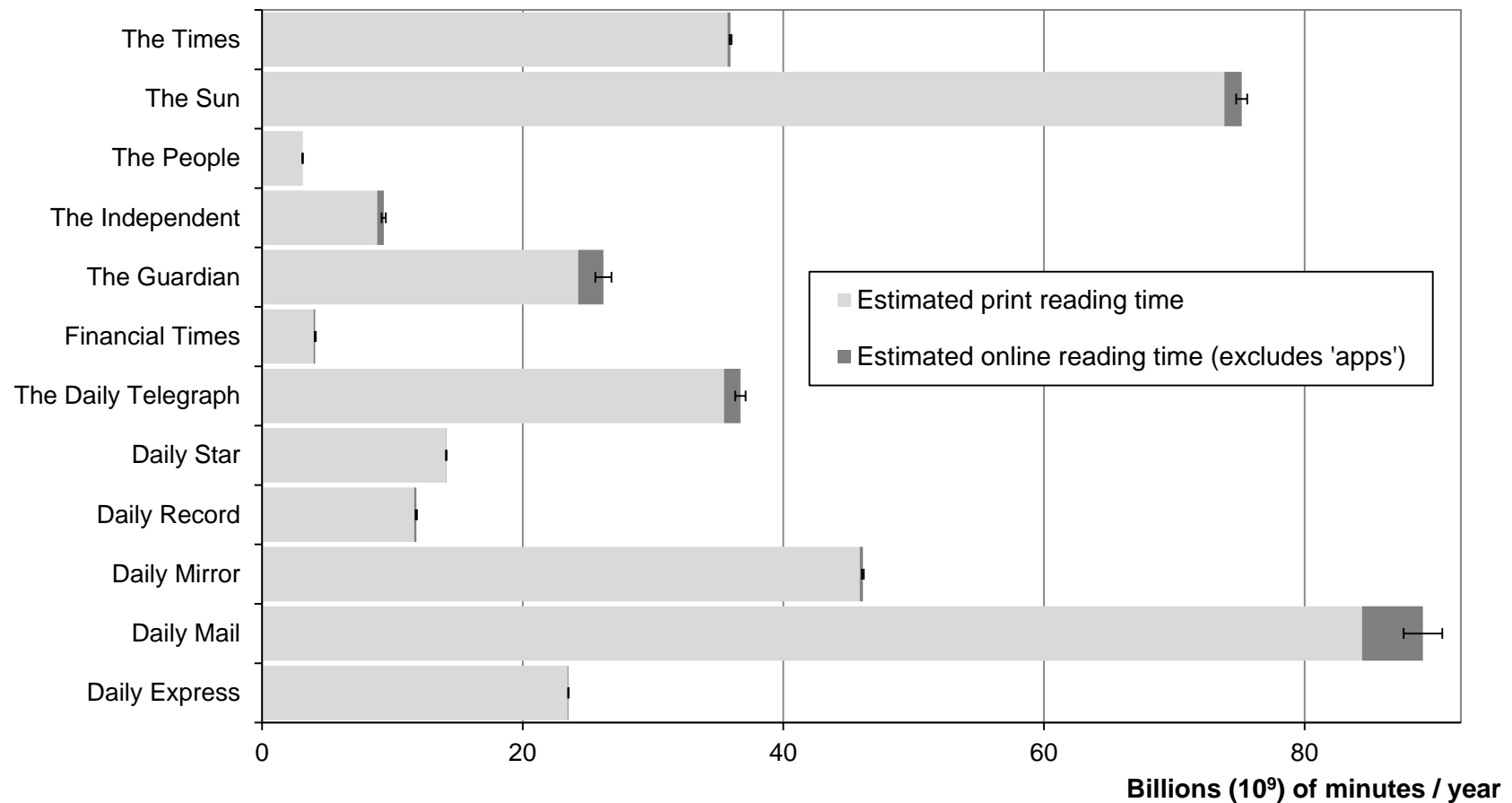


Table 2: Estimated percentage changes in 'total annual minutes spent reading' and 'combined print and online popularity' for 12 UK national newspapers based on their aggregated domestic print and online readerships, 2007–11

	Estimated percentage change, 2007–11			
	Total annual mins spent reading (print & online)		Combined print and online popularity	
	Max. fall	Min. fall / max. gain	Max. fall / min. gain	Min. fall / max. gain
<i>Daily Express, Sunday Express, Express.co.uk</i>	-20.1	-20.0	-15.5	-14.6
<i>Daily Mail, Mail on Sunday, MailOnline</i>	-9.1	-6.5	10.4	29.4
<i>Daily Mirror, Sunday Mirror, Mirror.co.uk</i>	-19.9	-19.9	-13.0	-10.7
<i>Daily Record, Sunday Mail (Scotland), Dailyrecord.co.uk</i>	-14.0	-13.5	-17.0	-16.7
<i>Daily Star, Daily Star Sunday, Dailystar.co.uk</i>	-16.6	-16.5	-7.9	-6.8
<i>The Daily Telegraph, The Sunday Telegraph, Telegraph.co.uk</i>	-22.6	-21.4	-2.9	12.1
<i>Financial Times, FT.com</i>	-12.5	-11.8	-0.5	6.0
<i>The Guardian, The Observer, Guardian.co.uk</i>	-1.5	1.0	28.5	45.1
<i>The Independent, The Independent on Sunday, Independent.co.uk</i>	-32.4	-30.8	5.0	27.3
<i>The People, People.co.uk</i>	-24.4	-24.2	-17.0	-16.7
<i>The Sun, theSun.co.uk *</i>	-7.2	-6.7	-3.6	-0.3
<i>The Times, The Sunday Times, TimesOnline.co.uk</i>	-21.9	-21.6	-20.9	-19.2

* Due to the 2011 closure of the Sunday edition of *The Sun—The News of the World*—these figures relate to *The Sun*'s Monday–Saturday editions only

Results

Domestic Readership—Time-spent-reading

The results of RQs 1 and 2 are presented in figure 2. In 2011, across the 12 national newspapers studied, a minimum of 96.7% of the time spent with newspaper brands by their domestic audience was in print. However, this average masks considerable individual differences. The 'popular/tabloid' titles have been least successful in reproducing their print popularity online. On average, in 2011, the *Daily Mirror*, the *Daily Record*, the *Daily Star*, *The People* and *The Sun* gained no more than 1.16% of their annual reading minutes from their online channel.

In contrast, the 'quality/broadsheet' newspapers have managed to be relatively more successful. In 2011, the three titles that did not charge for access—*The Independent*, *The Guardian*, and *The Daily Telegraph*—were, on average, getting up to 6.98% of their annual reading minutes from their online channel. The two 'quality/broadsheet' titles that have implemented an online paywall gain, as one would expect, a smaller proportion of their annual reading minutes from online: up to 4.1% for the *Financial Times* and 0.83% for *The Times*.

The two 'middle-market' newspaper brands studied—the *Daily Express* and the *Daily Mail*—fared very differently. In 2011, the *Daily Express*' performance was similar to the 'popular/tabloid' newspapers studied, with a maximum of just 0.33% of its annual reading minutes coming from online. By contrast, the *Daily Mail*'s performance is closer to that of the 'quality/broadsheet' newspapers studied, with up to 6.79%.

Looking at the results between 2007–11 (see table 2), what is perhaps most concerning for newspaper brands is that for all but one of the titles studied—*The Guardian*—the total number of minutes spent reading by the aggregated UK print and online readerships has declined. Across the 12 titles the average fall was at least 16.05%. However, again, this average masks differences between titles, although this time the results cannot be grouped neatly by market segment.

The greatest fall in time-spent-reading was recorded by *The Independent*, with at least 30.88%. The *Daily Express*, *The Daily Telegraph*, *The People*, and *The Times* recorded falls of at least 20%, while the *Daily Mirror*, the *Daily Record*, the *Daily Star*, and the *Financial Times* fell by at least 11.8%. The newspapers which had lost least time-spent-reading over the five-year period were the *Daily Mail*, with a fall of at least 6.5%, *The Sun*, with a fall of at least 6.7%, and *The Guardian*, which had gained up to 1.03%.

Overseas Readership—Time-spent-reading

As the methodological appendix explains, this study was only partially successful in quantifying overseas time-spent-reading (RQs 3 and 4). Comparable data for just five newspaper brands was available, that data covered a relatively narrow time period, and the final results are not directly comparable with the results obtained about the domestic audience.

The results do show, however, that, in 2011, the five newspapers studied were getting significant additional online reading minutes from their overseas readers. On average, for every hour spent online by domestic readers, overseas online readers contribute another 25.2 minutes. Although the historical data available is patchy, these proportions are fairly constant going back as far as April 2008, with the exception of the *Daily Mail*, which recorded a significant increase in online domestic time-spent-reading during 2011, which was not matched by a corresponding increase from the overseas online audience (see figure 3).

Despite the difficulties of distributing printed newspapers overseas, the majority of the UK's national newspaper brands have international print readerships in the tens or even hundreds of thousands. As the methodological appendix explains, the NRS data does not

provide information about how long these overseas print readers spend reading. However, if it is assumed *overseas* print readers spend the same amount of time reading newspapers' print editions as *domestic* readers, and that each *overseas* print copy has the same number of readers-per-copy as a print copy distributed in the UK, then some approximate answers to RQ 3 can be arrived at, and compared against the answers to RQ 4.

These results show that up until September 2011 all of the five newspaper brands studied were receiving more monthly overseas reading minutes from their print products than from their online channels. This changed in October 2011 for *The Independent* (see figure 6) as a result of its decision to halt international print distribution, replacing it with a new subscription service (Sweeney 2011). In the same month, overseas online time-spent-reading overtook overseas print time-spent-reading at *The Daily Telegraph* (see figure 5). However, this was due to a steep fall in overseas print readership rather than any significant increase in overseas online visitors. For the *Daily Mail*, which has not cut back its overseas print distribution, slightly more time continues to be spent by overseas readers with their print editions than with their online edition (see figure 4).

Figure 3: Estimation of the total monthly minutes spent reading by the aggregated UK and overseas readerships of MailOnline, April 2007–December 2011

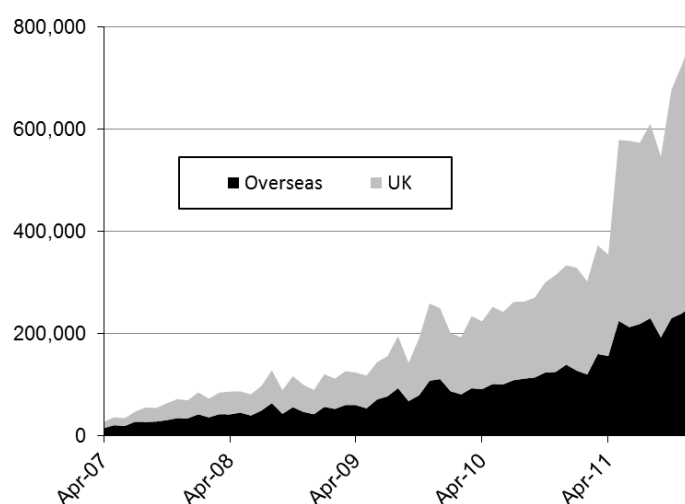


Figure 4: Estimated total monthly minutes spent reading by the aggregated overseas print and online readerships of *The Daily Mail*, *The Mail on Sunday*, and MailOnline, April 2007–December 2011

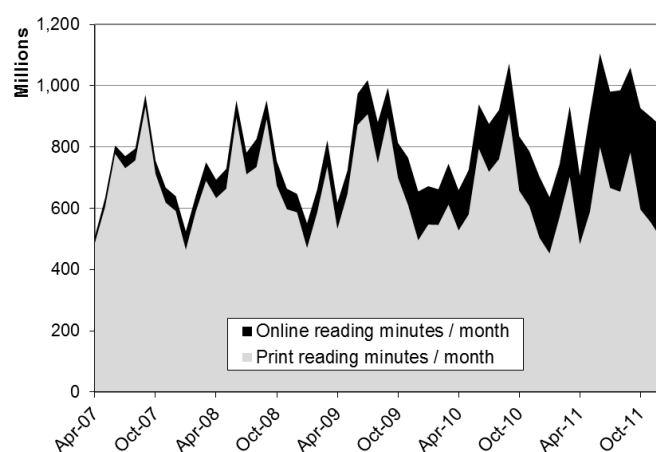


Figure 5: Estimated total monthly minutes spent reading by the aggregated overseas print and online readerships of *The Daily Telegraph*, *The Sunday Telegraph*, and *Telegraph.co.uk*, April 2008–December 2011

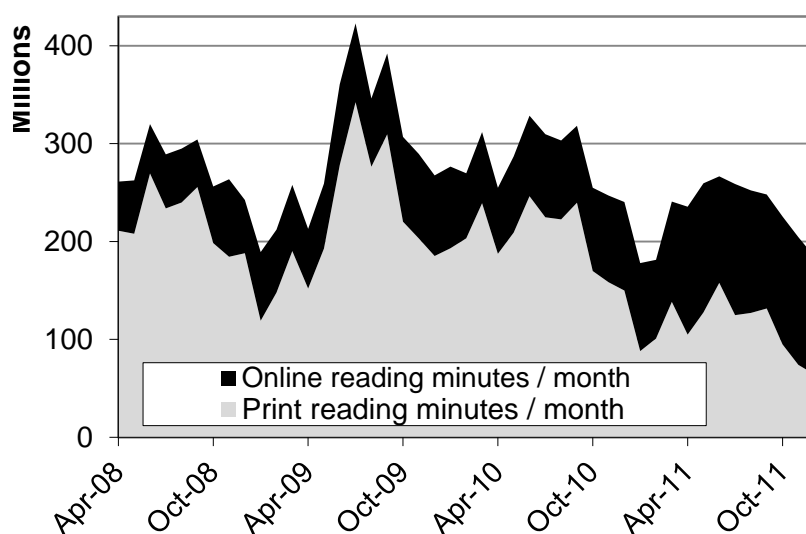
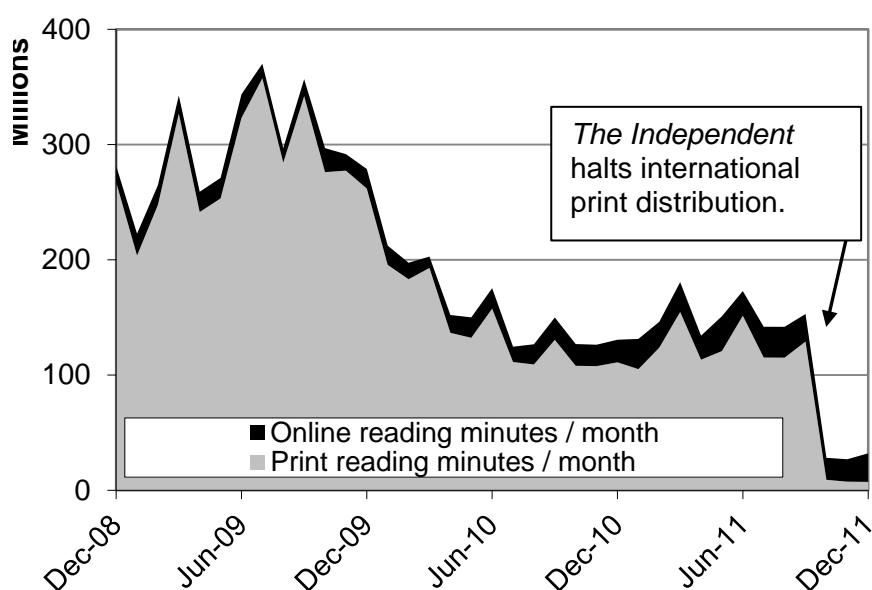
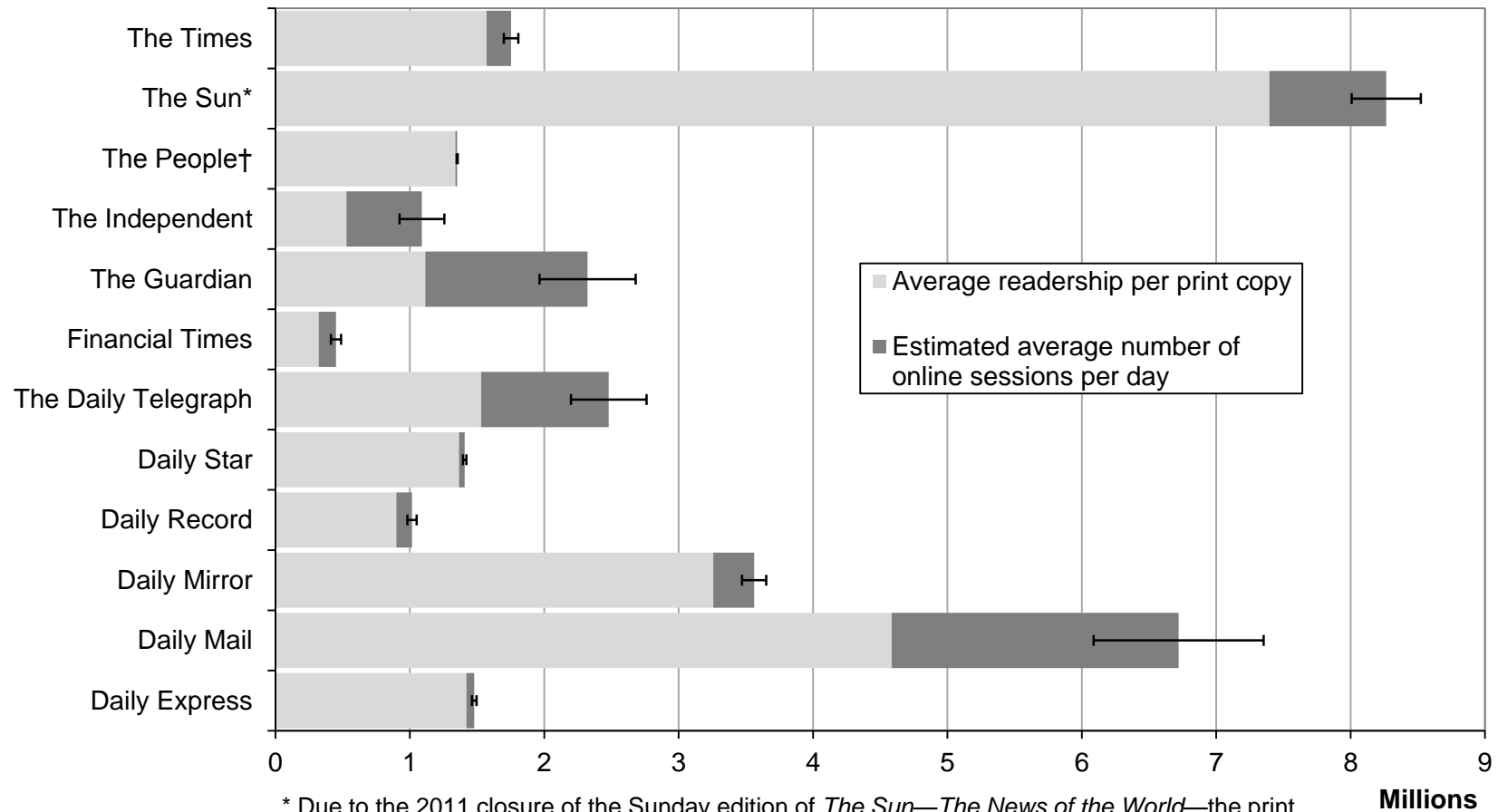


Figure 6: Estimated total monthly minutes spent reading by the aggregated overseas print and online readerships of *The Independent*, *The Independent on Sunday*, and *Independent.co.uk*, December 2008–December 2011



Looking at the results over time shows that the *Daily Mail* increased the time that its overseas print and online readers spent, collectively, with the brand between April 2007 and December 2011, by 33%. However, *The Daily Telegraph* and *The Independent* both suffered decreases. Overseas readers of *The Daily Telegraph* spent 19% less time with the brand (across print and online) in December 2011 compared with April 2008, and overseas readers of *The Independent* spent 78% less time in December 2011 than they had in December 2008.

Figure 7: Comparison of the print and online popularity of 12 UK national newspaper brands (based on their domestic readerships), 2011



* Due to the 2011 closure of the Sunday edition of *The Sun*—*The News of the World*—the print component of these figures relates to *The Sun*'s Monday–Saturday editions only.

† The *People* publishes in print on Sundays only.

Domestic Popularity

The figures this study presents on the number of online sessions per day recorded by newspapers' websites from their UK audience is derived from Nielsen data, which, as has been explained, under-reports some types of usage. Although neither the trial data generated using Nielsen's new 'hybrid' methodology nor data from newspapers' own web servers (via ABC) provides a means to directly gauge the extent of that under-reporting as it applies to daily online sessions, we can, because a session is made up of a number of page views, assume that any increase in a site's page views is likely to result in a proportionally similar increase in the number of daily online sessions. Therefore, the results presented in this section have been adjusted in a similar way³ to the Nielsen time-spent-reading data.

The answers to RQ 5 and RQ 6 are presented in figure 7. They show that, on average, UK national newspapers' print channels still account for the majority of their domestic daily readers. In 2011, the 12 national newspapers studied had an estimated average daily readership per print copy of 2,110,633. By contrast, this study estimates the average number of online sessions per day to be between 385,156 and 709,559.

However, these averages mask considerable individual differences. The 'popular/tabloid' titles have been least successful in reproducing their print popularity online. This study estimates average online sessions per day in 2011 for the *Daily Mirror*, the *Daily Record*, the *Daily Star*, *The People* and *The Sun* to be between 189,239 and 348,628 (compared with an average daily print readership of 2,851,402).

In contrast, the 'quality/broadsheet' newspapers have managed to be relatively more successful. This study estimates that in 2011 average online sessions per day for the three titles that did not charge for access—*The Independent*, *The Guardian*, and *The Daily Telegraph*—were between 637,656 and 1,174,730 (compared with an average daily print readership of 1,057,549). The two 'quality/broadsheet' titles that have implemented an online paywall receive, as one would expect, a smaller number of online sessions per day. This study estimates that in 2011 average online sessions per day were between 90,218 and 166,204 for the *Financial Times*, and between 128,704 and 237,107 for *The Times* (compared with estimated average daily print readerships of 321,951 and 1,570,318 respectively).

The two 'middle-market' newspaper brands studied—the *Daily Express* and the *Daily Mail*—fared very differently. In 2011, the *Daily Express*' performance was similar to that of the 'popular/tabloid' newspapers studied, with between 41,068 and 75,657 online sessions per day (compared with an estimated daily print readership of 1,420,753). By contrast, the *Daily Mail*'s performance was closer to that of the 'quality/broadsheet' newspapers studied, with between 1,502,720 and 2,768,403 online sessions per day (compared with an estimated daily print readership of 4,584,918).

An analysis of the trends between 2007–11 (see table 2) reveals that, on average, combined domestic print and online popularity across the 12 titles has been more or less steady. However, although all the newspapers studied saw falls in the average readership per print copy, some did better than others in increasing the number of daily online sessions. The 'quality/broadsheet' newspapers with free-to-access websites—*The Guardian*, *The Daily Telegraph*, and *The Independent*—did best, alongside the 'middle-market' *Daily Mail*. The 'popular/tabloid' *Daily Record*, *The People*, the *Daily Mirror* and the *Daily Star* did worst, along with the 'middle-market' *Express*. However, the greatest fall in popularity was recorded by *The Times* (a minimum of 19%), whose paywall significantly reduced their online traffic in 2011. The 'popular/tabloid' *Sun*'s combined domestic print and online popularity held more or less steady, as did the subscription-based *Financial Times*.

Overseas Popularity

As the methodological appendix explains, RQs 7 and 8 could only be answered to a limited degree. Figures 8 and 9 show the only two comparisons of newspapers' print and online overseas popularity that the data supported: for the *Daily Mail* and *The Guardian*. On

average, in 2011 the *Daily Mail* had an estimated daily overseas print readership of 416,830, compared with 2,386,162 daily unique overseas online users/browsers. In the three months for which data was available, *The Guardian* had an average estimated daily overseas print readership of 79,099, compared with 1,473,198 daily overseas online unique users/browsers. These print readership figures have been calculated using the NRS's readers-per-copy data for these titles (albeit from a survey conducted in the UK), which makes the daily print *readership* about two and a half times greater than its *circulation* for the *Daily Mail* and about three and a half times greater for *The Guardian*.

Figure 8: Comparison of the print and online popularity of *The Daily Mail*, *The Mail on Sunday*, and *dailymail.co.uk* (based on their overseas readerships), Jan 2010–Dec 2011

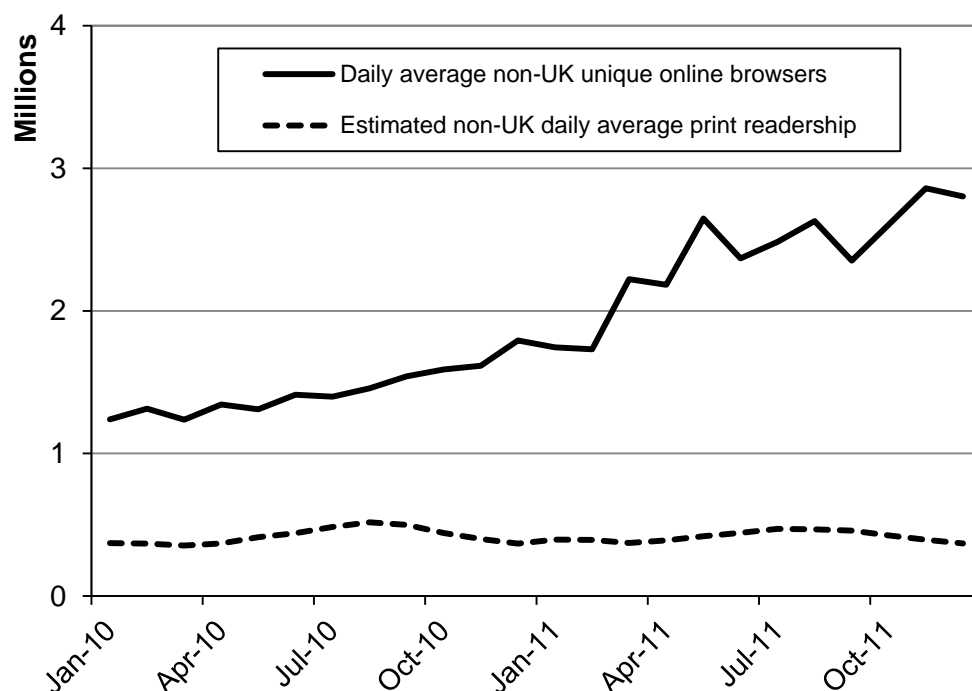
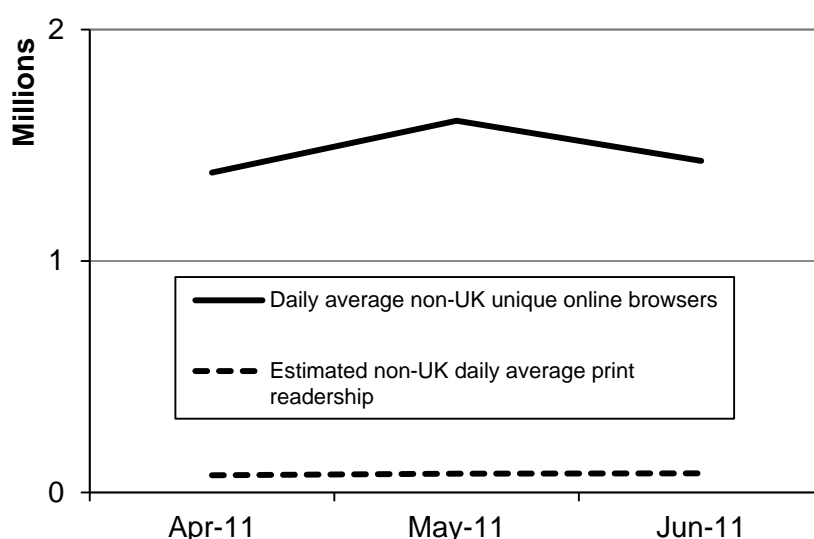


Figure 9: Comparison of the print and online popularity of *The Guardian*, *The Observer*, and *Guardian.co.uk* (based on their overseas readerships), April–June 2011



Newspaper Consumption on Mobile 'Apps'

As has been mentioned, due to the limitations of the data from ABC and Nielsen, this study was not able to include in its estimates of popularity and time-spent-reading, data about newspapers' mobile and tablet 'apps' (as opposed to the use made of newspapers' websites via traditional web browser software installed on smartphones and tablet computers, which was included). Newspapers are increasingly making their content available through mobile 'apps': of the nine national newspapers in the UK and US that Thurman and Schifferes (2012) surveyed between October–December 2010, all but one had a mobile 'app', and, on average, the newspapers provided 'apps' for 2.2 different platforms.

In the UK, newspapers publish limited data about the popularity of their 'apps', and no data on the time users spend reading those 'apps'. Only *The Independent*, the *Daily Mail*, and *The Guardian* provide (via ABC) data on the performance of their 'apps'. This data, some of which is collated in figures 10 and 11, reveals, amongst other things, that, by the end of 2011, the MailOnline's iPhone app appeared to be responsible for 35% of its monthly page impressions. This consumption is not captured by Nielsen's methodology (indeed it is unavailable from any source for the majority of newspapers included in this survey and for any newspapers prior to May 2011) and hence not included in this study's analyses. If the average time users spend with a 'page' of a newspaper 'app' were broadly equivalent to the time spent with a 'page' of a newspaper website then this 'hidden' consumption would mean that this study under-reports the audience attention received by newspapers' online channels by more than a third in some cases. However, before we jump to such a conclusion we should examine the nature of a page impression on a mobile device. Although ABC define an "App Page Impression" as "equivalent to a page of content" (ABC 2012), the amount of content on the page of an iPhone 'app' is considerably less than on the page of a standard website. So in any browsing session 'app' users are likely to download more 'pages' but look at each 'page' for less time.

The data supports this hypothesis (see figure 12). For example, in December 2011 the 322,815 unique browsers of the MailOnline's iPhone app downloaded 380,423,075 pages: equivalent to 1,178 pages per browser per month. In the same month the average non-'app' unique browser downloaded just 8.5 pages (yes, eight point five). Although it is possible—even likely—that the MailOnline's 'app' users consume more content as a result of the availability of their iPhones throughout the day—in the early morning, during the daily commutes, at lunch breaks, and even in bed last thing at night—it seems unlikely that the MailOnline's iPhone 'app' commands 138 times more attention per user per month than the website. We should, therefore, while acknowledging the 'hidden'—and growing—consumption of newspapers via mobile 'apps', be cautious in our interpretation of its extent.

Figure 10: Comparison of monthly page impressions recorded by MailOnline and the MailOnline's iPhone 'app', May 2011–Dec 2012 (source: ABC)

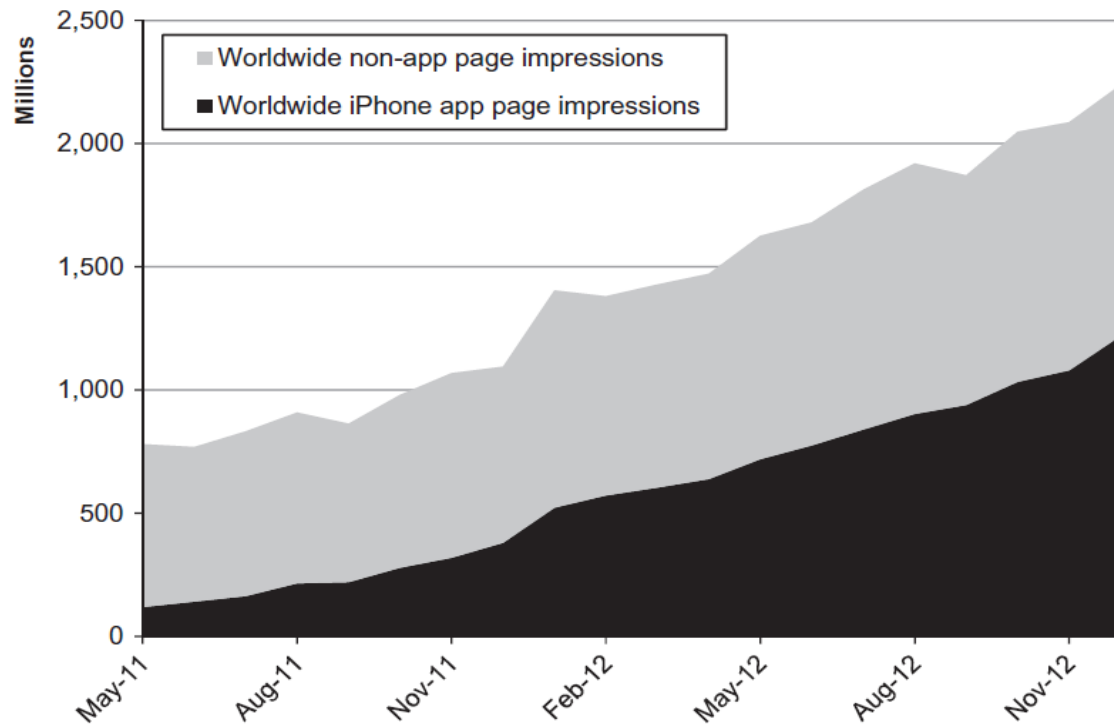


Figure 11: Comparison of monthly page impressions recorded by Independent.co.uk and *The Independent's* iPhone, Android, and Blackberry 'apps', May 2012–December 2012 (source: ABC)

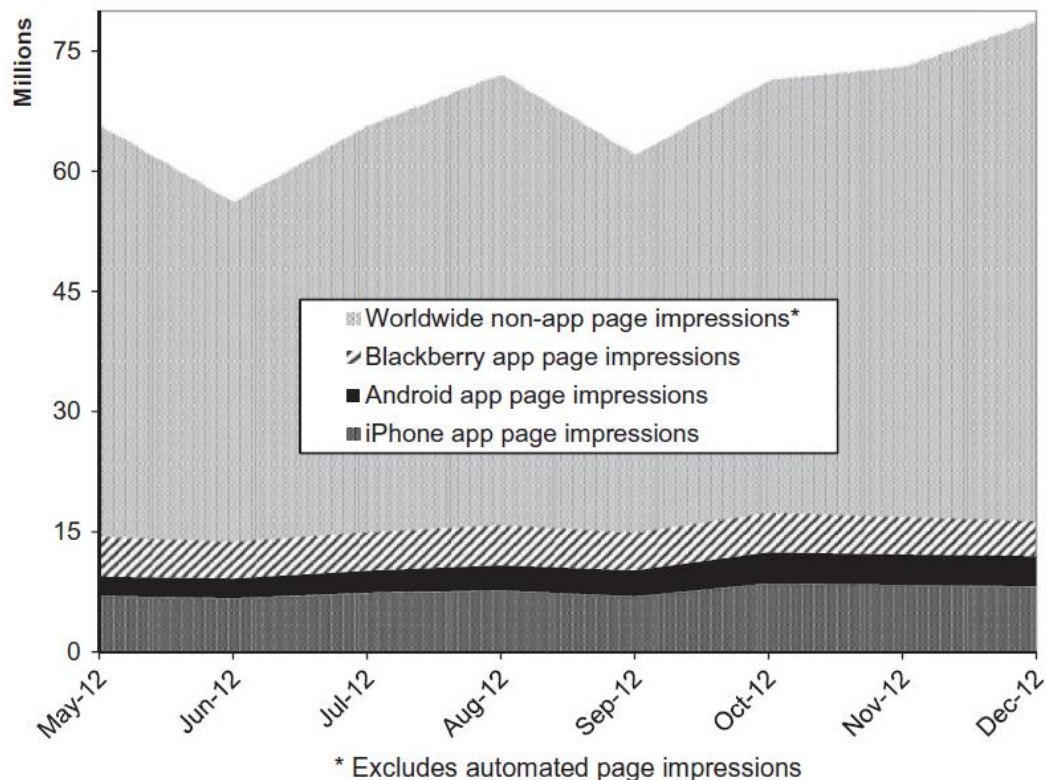
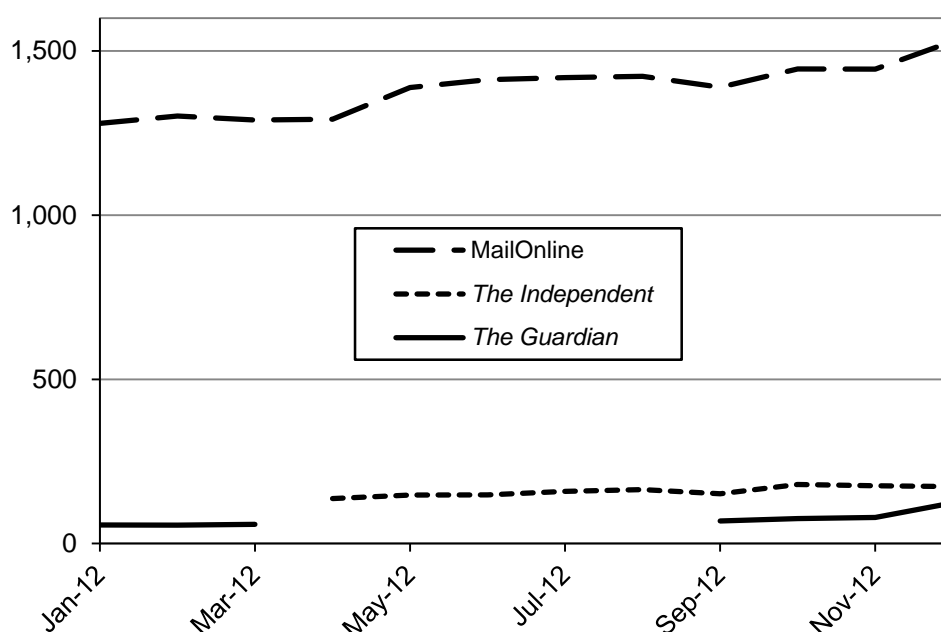


Figure 12: Monthly page impressions per unique browser for *The Guardian*, MailOnline, and *The Independent's* iPhone 'apps', 2012 (source: ABC)



Discussion

With the exception of *The Times* (which has erected an online paywall), all the 'quality/broadsheet' newspapers this study analysed increased their combined print and online popularity with domestic readers between 2007–11, as did the 'middle-market' *Daily Mail*. They did this because increases in daily online sessions outstripped losses in daily print readers. Why have these titles succeeded in reaching out to online readers in a way that their 'popular/tabloid' competitors have not? This study did not set out to answer this question, but its results prompt its deliberation. One hypothesis is that the increasing consumption of news on office computers in the workplace (see: Boczkowski [2010] and Thurman and Walters [2013]) privileges publications that suit users' privacy concerns (Boczkowski 2010, 127) by, for example, avoiding forms of content and presentation that might draw the disapprobation of managers or co-workers; and that have a reader profile that more closely matches the demographics of white collar workers. Another hypothesis is that these newspaper websites have succeeded because they have done a better job in delivering content geared to a web audience "not bounded by geography or social class" (Oremus 2012), and in formats tailored to the online medium and its consumption patterns, formats that include live blogs (see: Thurman and Walters [2013]) and that adapt content to users' explicitly stated or implicitly determined preferences (see Thurman [2011] and Thurman and Schifferes [2012]).

Although some newspapers might take comfort from their increased popularity, because the online visitors who are driving that increase are being relatively frugal with the time they spend with newspapers' online channels, losses in the time-spent-reading newspapers' print products have not, with the exception of *The Guardian*, been offset by gains in online time-spent-reading. Of course this study cannot perfectly measure time-spent-reading, particularly in the online environment where newspapers' content and advertising is pushed out to audiences via, for example, email newsletters, sms alerts,

aggregating sites, and—perhaps most significantly—mobile ‘apps’. In order for the readers’ attention that newspapers capture via their mobile ‘apps’ to be more accurately accounted for, a greater proportion of newspapers need to start reporting their ‘app’ data, and that data needs to cover a fuller range of ‘apps’. Furthermore, the meaning of common consumption metrics (such as the ‘page impression’) across devices (such as the smartphone and desktop computer) that are very different in nature and use needs to be clarified. Without such data, reports of the “huge transformational effect” of mobile news consumption—as reported by *The Guardian*, who say that 35% of their ‘visits’ come from mobile devices (Dredge 2012)—cannot be properly interrogated.

Even levels of mobile consumption at this scale—the ‘app’ portion of which is off the radar of both this study *and* of some of the latest online survey methodologies such as Nielsen’s ‘Hybrid’—are, however, unlikely to change the overall picture this study paints of newspaper consumption in the digital age. The facts remain that newspapers have a huge reliance on print for the temporal attention of their domestic audiences, and that attention is falling for most newspapers every year.

As advertising expenditure moved online—more is now being spent on Internet advertising in the UK than on any other sector including TV and Press (AA 2013)—it is unsurprising that newspapers wanted to position themselves as credible players in the market. It is because of this, perhaps, that they started and continue publicly to report their online consumption using metrics (‘page impressions’ and ‘unique users’) that compare favourably with their print circulations (behaviour reinforced, of course, by the need to trade using the accepted currencies of the Internet audience marketplace). Their support for such currencies may, however, have hastened the shift in advertising revenues from print to online by legitimising simplistic exposure-based measures at the exclusion of data on attention and engagement, which show (as this study demonstrates) how their core products—their print editions—capture and deliver audience attention at a level out of proportion to their popularity.⁴

Given that newspapers still rely on print for a huge proportion of their advertising revenues—over 86% in 2011 (NAA 2012)—there remains an incentive for newspapers to exercise greater influence on the evolution of audience measurement by trying to ensure that time-spent-reading and / or other measures of engagement are reported with as much prominence as data on exposure, something that is not currently the case (see, for example, McAthys [2012]).

There would, of course, be institutional resistance to the introduction and widespread adoption of alternative audience measurement metrics (Waterman, Ji, and Rochet 2007), although new audience measurement systems are often introduced in spite of such resistance (Napoli 2011, 131). However, even if publishers and advertisers agreed to utilize a new audience measurement currency that not only fused print and digital data but also supplanted the traditionally dominant exposure-based metrics with metrics rooted in attention and the, admittedly, “persistently ambiguous” (90) notion of engagement, it is unlikely that newspapers’ long term decline would be reversed.

What we might see, however, are changes in the behaviour of newspaper firms, as editorial approaches less “viable under traditional metrics of success” are supported and encouraged (Napoli 2011, 156). On the evidence of this study, such changes may, as Napoli suggests, result in the production of, at least some, “higher-‘quality’ content” (18).

Newspaper brands are still overwhelmingly reliant on their print products for audience attention and revenue. The fading fortunes of those print products means that it is going to be increasingly common, as with Newsweek, for a ‘tipping point’ to be reached where it becomes more “efficient” to reach readers in all-digital format. If, as Newsweek’s editor and CEO hope, digital distribution is also to be “effective”, news brands would do well to take inspiration from the digital strategies of the newspapers this study has highlighted as having been the most successful in retaining, and even growing, the attention they receive in a digital world.

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Notes

1. The Sunday version of *The Sun*—*The News of the World*—was excluded from the calculations for 2011 because of its closure part way through that year.
2. 'Apps', short for 'applications'. Used in this article to refer to software applications developed specifically for mobile computing devices (such as Android and iOS smartphones and tablets) that bypass newspapers' web servers.
3. The correction range was 34.4–147.6%. The upper end of this correction scale is the maximum extent of the Nielsen underestimation this study found, across 2011, for page view counts of any of the five newspaper websites analysed (see figure 1). The lower end is the smallest uplift in page view counts recorded (for *The Guardian* website) in Nielsen's February 2012 trial (see table 1).
4. This fact is reflected in the differences (not commonly known) in the pricing of print and online advertising. Turow (2011, 78) reports that a typical CPM rate for a major print newspaper is \$50 but that such a newspaper's website receives CPMs of only \$1–2 for the sale of 80% of its online space. CPM (Cost per mil) is "the price for reaching a thousand members of the target audience via [a given outlet]" (Turow 2011, 21).

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Methodological Appendix

ANSWERING THE RESEARCH QUESTIONS

In order to answer RQ 1, the following procedure was carried out for each newspaper for each year (2007–11, inclusive):

1. The number of weekdays in the year was multiplied by the average NRS minutes spent reading figure for the Monday–Friday edition, and the number of Saturdays in the year was multiplied by the average minutes spent reading figure for the Saturday edition. These two figures were then added and multiplied by the newspaper's Monday–Saturday readership (the ABC print circulation figure multiplied by NRS readers-per-copy figure).
2. The number of Sundays in the year was multiplied by the average minutes spent reading for Sunday. This figure was then multiplied by the newspaper's Sunday readership.
3. The results of calculations 1) and 2) were then added.

The answers to RQ 2 are derived from data supplied by the Nielsen Company with a correction applied (see methodology section).

In order to answer RQ 3, the following procedure was carried out:

1. The average monthly overseas Monday–Saturday circulation per issue was multiplied by the number of Monday–Saturday issues per month. This figure was then multiplied by the NRS readers-per-copy figure for UK readers of that publication. That figure was then multiplied by the average minutes spent reading per reader per issue (derived from NRS data on minutes per UK reader per month for Monday–Friday and Saturday editions).
2. The average monthly overseas Sunday circulation per issue was multiplied by the number of Sunday issues per month. This figure was then multiplied by the NRS readers-per-copy figure for UK readers of that publication. That figure was then multiplied by the NRS Minutes spent reading per UK reader per issue figure.
3. The results of calculations 1) and 2) were then added.

The above calculations were only made for newspapers and for months where comparable data on overseas online time-spent-reading was available (see RQ4). It is important to note that the NRS time-spent-reading and readers-per-copy data used to answer RQ3 comes from a sample of UK adults. In answering RQ 3 the assumption was made that *overseas* print readers spend the same amount of time reading newspapers' print editions as *domestic* readers and that each print edition distributed overseas has the same number of readers-per-copy as copies distributed in the UK. For these reasons the answers to RQ 3 can only paint an approximate picture.

Because the Nielsen data this study uses comes from their UK panel, it could not provide answers to RQ 4. Instead, the following method was used:

1. For each newspaper website for each month, the time-per-person data Nielsen provided from their UK panel was divided by their 'pages per person' data to produce a figure for the average amount of time users spend on a page.
2. For each newspaper website for each month this 'time per page' figure was multiplied by the number of overseas page impressions to produce total monthly minutes.

Overseas page impression data came from the ABC. However, only a very limited number of UK newspaper websites choose to release their overseas user data (see Thurman [2007] for an explanation). Overseas data for just five of the twelve titles included in this study was available from ABC—DailyMail.co.uk, Telegraph.co.uk, Independent.co.uk, theSun.co.uk, and theTimes.co.uk—and not for the full five years this study covers. The method used to answer RQ 4 has two specific limitations. Firstly, it assumes that overseas users spend the same amount of time reading a page as domestic users. Other research suggests this may be a conservative assumption. Nicholas et al. (2000, 406–410) and Thurman (2007, 299) have previously shown that overseas readers of the websites of *The Times* and *The Daily Mail* spend more time reading a page than UK readers. And secondly it uses ABC page impression data, which is collected using a different methodology (server-centric) than the Nielsen data that was used to determine the time the UK audience spend reading newspapers' online editions. Compared with Nielsen, data published by ABC registers all work and more mobile page impressions giving a higher level of usage. For these reasons the answers to RQ 4 paint an approximate and incomplete picture of the time the overseas readerships of UK national newspapers spend reading their online editions. They have been included as part of this study's results because, for the titles where data was available, overseas readers appear to make up a significant proportion of the total amount of time readers spend with newspapers' online editions.

The answers to RQ 5 came from the NRS (ABC circulation figures multiplied by NRS readers-per-copy figure).

To answer RQ 6, for each newspaper website for each year, the average number of monthly sessions was calculated from Nielsen data and that figure was divided by the average number of days in a month (30.41).

In order to answer RQ 7 the following procedure was carried out:

1. Overseas print circulation was calculated by subtracting UK circulation from Total circulation. This was done for both the weekday and Sunday editions.
2. Weekday overseas print circulation per issue was multiplied by the number of weekday editions to produce total monthly circulation.
3. Sunday overseas print circulation per issue was multiplied by the number of Sunday editions to produce total monthly circulation.
4. Total monthly weekday circulation was added to total monthly Sunday circulation to produce total monthly circulation (weekday and Sunday combined).
5. Total monthly circulation (weekday and Sunday combined) was divided by the number of weekday and Sunday editions published in month to produce a figure for the average circulation per issue.

The ABC only had data on the daily average number of 'unique users/browsers' from the Rest of the World for two newspaper websites: DailyMail.co.uk and Guardian.co.uk. What's more, that data was only available for very limited periods: from January 2010–December 2011 for DailyMail.co.uk, and from April 2011–December 2011 for Guardian.co.uk. These figures have been used to answer RQ 8. They provide some comparison with average daily overseas print circulation, but the two figures are not directly comparable.

INCLUSION OF BULK OR MULTIPLE SALES

The ABC print circulation data used in this study includes so-called bulk or multiple sales. These are where a newspaper supplies copies to be distributed at airports, on trains, in hotels, and at other locations such as gyms. The ABC sets out a series of rules for such sales and performs audits. For example, the number of bulk copies airlines can distribute at a departure gate cannot exceed 75% of the number of seats on that plane (Greenslade 2009). As of August 2012 only four of the national daily newspapers included in this study reported bulk sales, which represented between 0.67% (for the *Daily Record*) and 23% (for *The Independent*) of their totals. The circulation figures used by this study include bulk sales because it was felt, on balance, that more copies distributed this way were likely to have been read than not. However, their inclusion may overestimate circulation figures and, therefore, this study may overstate the time that some newspapers' print readerships spend reading, as well as the popularity of print editions.

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